

SOLICITATION FOR PROPOSALS

FOR THE JOINT
NATIONAL NUCLEAR SECURITY ADMINISTRATION/
AIR FORCE RESEARCH LABORATORY/
ARMY SPACE AND MISSILE DEFENSE COMMAND



BROAD AGENCY ANNOUNCEMENT FOR FISCAL YEAR 2007 REGARDING NUCLEAR EXPLOSION MONITORING RESEARCH AND ENGINEERING

SOLICITATION NUMBER DE-SC52-06NA27305

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This Solicitation and any Amendments are available via the Internet at:
<http://e-center.doe.gov/>.

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I. INTRODUCTION

The National Nuclear Security Administration (NNSA), the Air Force Research Laboratory (AFRL), and the Army Space and Missile Defense Command (SMDC) are jointly soliciting proposals for the research and engineering needs described herein. This Broad Agency Announcement (BAA) constitutes the actual solicitation for this requirement as publicly synopsized with a Notice of Interest issued on February 01, 2006 and posted on the U.S. Department of Energy (DOE) e-Center Procurement Web Page at <https://e-center.doe.gov/iips/faopor.nsf/1be0f2271893ba198525644b006bc0be/44d00407bf116d7e85257108005fc4d2?OpenDocument> and on the Grants.Gov web site at <http://www.grants.gov/search/search.do?mode=VIEW&oppId=7843>.

The NNSA, the AFRL, and the SMDC invite proposals for research and development to improve national capabilities to detect, locate and identify nuclear explosions in support of the Air Force Technical Applications Center (AFTAC), the U.S. government agency responsible for operation of the nuclear explosion monitoring systems. The NNSA Office of Nonproliferation Research and Engineering (NA-22) has the responsibility to apply the broad base of U.S. expertise that has been acquired in testing nuclear weapons and in supporting disciplines to improve national capabilities to detect, locate and identify nuclear explosions and to provide cost-effective technologies, algorithms, hardware, and software to U.S. government agencies that are responsible for nuclear explosion monitoring. The AFRL and SMDC have the responsibility to execute Department of Defense (DoD) research and development (R&D) related to nuclear explosion monitoring.

Research products under this solicitation shall support Air Force's national nuclear explosion monitoring mission requirements and will be integrated by the NNSA into product deliveries, primarily Knowledge Base deliveries, to AFTAC (the end user). Information about the NNSA Nuclear Explosion Monitoring Research & Engineering (NEM R& E) Program integration of AFRL, NNSA and SMDC research products into operational form for the Air Force can be found online at <https://www.nemre.nnsa.doe.gov/nemre/KnowledgeBase>. Proposals may be submitted for either a contract or a financial assistance award. However, NNSA, AFRL, and SMDC reserve the right to determine which procurement instrument shall be used. The instrument used will be appropriate to the scope of work. In general, contracts are used when definitive products, hardware, or software will be delivered, when there is extensive coordination and direction required from the government during the execution of the Statement of Work, or when the deliverables directly contribute to a specific government program. Financial assistance is generally used for R&D deliverables where there are unknown factors, where "best efforts" are acceptable, where there is less coordination and direction required from the Government, or when the deliverables are of benefit to the general public.

Responses are requested from responsible organizations (foreign and domestic) including those from private industry, academic institutions, research institutions and non-profit organizations. NNSA, AFRL, and SMDC are strong advocates for the small business community and interested small businesses, small business-lead teams, and joint ventures that qualify as small businesses are especially encouraged to submit proposals under this

BAA. Federal agencies may submit proposals subject to appropriations language, but may not partner with Federally Funded Research Development Centers (FFRDCs) in order to not violate the Federal Acquisition Regulations [see FAR 35.017 (a)(2)] prohibition of competition with the private sector. Similarly, FFRDCs, including the NNSA national laboratories, cannot directly respond to this solicitation as prime/lead contractors, but can participate in this solicitation as subcontractors or team members per the Federal Acquisition Regulations (FAR). For-profit organizations that respond to this notice should indicate whether or not they are a small business, a socially and economically disadvantaged business, or a woman-owned business. Educational institutions that respond to this solicitation should indicate if they are Historically Black Colleges or Universities or Minority Institutions. Offerors are to be registered in Central Contractor Registration (CCR) at <http://www.ccr.gov/>.

Awards under this Solicitation are subject to the availability of funds. It is estimated that 11 to 25 awards will be made under this solicitation, but the exact number of awards is unknown. Acceptance of a Proposer's proposal for evaluation does not obligate NNSA, AFRL or SMDC to make an award. NNSA, AFRL, and SMDC reserve the right to fund, in whole or in part, any, all or none of the proposals submitted in response to this solicitation. NNSA, AFRL, and SMDC also reserve the right to award without discussions.

A. Nuclear Explosion Monitoring Research and Engineering Solicitation Overview

NNSA, AFRL, and SMDC invite proposals for nuclear explosion monitoring research and engineering under Solicitation Number DE-SC52-06NA27305 in accordance with Public Laws 42 U.S.C. 7254 and 40 U.S.C. 486(c) and their implementing regulations in Title 10 Part 600 and Title 48 Part 35 of the Code of Federal Regulations. The ground-based Nuclear Explosion Monitoring (GNEM) Research and Engineering (R&E) Program (<https://www.nemre.nnsa.doe.gov/cgi-bin/prod/nemre/index.cgi>), under NNSA's Office of Nonproliferation Research and Engineering (NA-22) is the program managing this solicitation. The Threat Detection Section of the Battlespace Surveillance Innovation Center of the Space Vehicles Directorate is managing this solicitation for AFRL. The Advanced Technology Directorate is managing this solicitation for SMDC. This solicitation requires proposals to be submitted electronically, as explained in the section "Submission of Proposals."

B. Technical Scope and Research Topics

Research is being sought in the following topic areas:

TOPIC 1: Challenges in Seismic Monitoring;

TOPIC 2: Seismic Calibration and Ground Truth Collection;

TOPIC 3: Velocity Models and Synthetic Seismograms;

TOPIC 4: Seismic Detection, Location, Discrimination, and Yield Estimation;

TOPIC 5: Infrasound studies;

TOPIC 6: Hydroacoustic studies; and

TOPIC 7: Radionuclide studies.

The objective of this solicitation is to enhance U.S. capabilities in nuclear explosion monitoring primarily with ground-based systems. This will be achieved through advances in the state-of-the-art for nuclear explosion monitoring, basic and applied research that enhances understanding of the underlying phenomena, developing new methods of tackling monitoring problems, or developing new data of use in nuclear explosion monitoring. Field experiments may be proposed. A good resource for proposers is the 27th Seismic Research Review: Nuclear Explosion Monitoring: Building the Knowledge Base, on September 20-22, 2005 see <https://www.nemre.nnsa.doe.gov/cgi-in/prod/researchreview/index.cgi?Year=2005>.

Each of the topic areas is described below. Individual proposals should be directed to only one topic area, but the Proposer may submit proposals in more than one topic area. Resubmittals should contain an explanation of how the proposers modified the earlier submittal to address reviewer comments from the previous review. All topic areas are of importance. However, depending on the proposals received and programmatic needs, funding will not necessarily be distributed evenly among the topic areas.

Topic 1 (Challenges in Seismic Monitoring)

Proposals are sought that address the characteristics of small seismic events and the associated seismic signals observed at local (< 200 km) distances. Of particular interest are methods of estimating yield (or equivalent) with uncertainties of a factor of 10 or less for seismic events recorded at local distances (where, for instance, coda may not be available as a stable estimator). The properties of small near surface events are of particular interest, including the variability in local discriminant properties of point explosions, distributed explosions, mine-related stress release, mining activities, shallow earthquakes, and cavity-decoupled explosions; the variation in these discriminant properties with event size over five orders of magnitude; and the variability in and nature of propagation of phases from such events at local distances, including the effect of the weathered zone. Innovative methods of detection appropriate for local events is of interest. Characterization of factors such as tectonic setting or other regional characteristics that affect or determine the characteristics of microseismicity in different locales is also of interest. Systematic studies of all the factors for local events, or as many as practicable, in one or more regions, with delivery of database(s) with appropriate metadata, are desirable. Development of new rugged sensors suitable for portable deployment with observation of the full suite of signals pertinent for local and regional distances is of interest. Proposals are sought on the generation of S waves by partially coupled events relative to tamped events. Combined interpretation of seismic and infrasound signals should be submitted to Topic 5.

Topic 2 (Seismic Calibration and Ground Truth Collection)

Proposals to find events that can be used to calibrate seismic monitoring are sought. For location calibration, proposals for dedicated GT0 calibration explosions are of high interest, especially reciprocal calibration shots. Collection of location ground truth at a GT5 level (absolute location and depth errors less than 5 kilometers) or better is sought for events of magnitude 2.5 and larger. Proposals must specifically address uncertainties in the acquired ground truth information, either by using accepted standards or by proposing credible new

methods; research efforts on new methods of acquiring location ground truth will be accepted under this topic.

Geophysical studies that generate new discrimination ground truth events with source geometry and other characterizing information are sought, such as shallow earthquakes, mining explosions or mining related studies. Calibration of regional coda magnitudes is of interest.

Proposals for development of methods to transfer existing geophysical calibration information (e.g., travel-times, attenuation, etc.) from open seismic stations to new or planned stations and arrays in the monitoring network are of interest. Proposals are sought to estimate geological and geophysical constraints on explosion emplacement conditions in complex areas, especially highly variable regions.

Topic 3 (Velocity Models and Synthetic Seismograms)

Proposals are sought to develop models that calibrate earth velocity and attenuation structure, especially in aseismic regions. As part of this topic there is an interest in new techniques of determining velocity models, such as: tomography; procedures that develop models by fitting multiple datasets; procedures that estimate the uncertainty of geophysical models and tradeoffs between different parameters of these models, and the resulting uncertainty in observables such as travel times and amplitudes; and studies comparing different methods to find the strengths and weaknesses of each. Improved Q models with emphasis on regional phases Pn, Pg, Sn, Lg and surface waves are desirable. Priority will be given to studies of propagation conditions in Eurasia.

Innovative methods of computing synthetic seismograms for local, regional, and near teleseismic distances are of interest. Some topics of interest are 3D computations in large models, more efficient 2.5D calculations that could be incorporated in other routines (e.g., location), hybrid or approximate methods that have significant advantages over other methods, and methods that calculate spectra or envelopes; or other relevant topics.

Topic 4 (Seismic Detection, Location, Discrimination, and Yield Estimation)

Research proposals to improve seismic detection, location, discrimination, and yield estimation for nuclear explosion monitoring are sought, as detailed below. Tuning studies, either of specific arrays or of techniques in general, are not sought.

New and innovative seismic signal processing methods are sought with potential to significantly lower the thresholds at which detection, location and identification functions can be performed at acceptable false alarm rates. New and innovative methods of array signal processing are solicited that employ calibration or other techniques to enhance signal detection and parameter estimation (e.g., azimuth, phase velocity) in strongly heterogeneous media. Full waveform methods, including waveform matching, for seismic event detection, location, and discrimination are of particular interest, especially studies that assess success and failure rates and the effect of less than perfect matching. Estimating improvements in detection, including testing of detection processes using superposition of actual signals in increasing noise, is of interest.

Improved methods of arrival-time picking and phase identification, including the probability of phase misidentification and the effect on location error, are desired. Improved location techniques are sought; especially development and validation of mathematical and geophysical techniques for determining new ground truth events and earth structure. An

example could be combining relative event locations with limited ground truth constraints (such as fault traces).

Proposals for advanced discrimination methods that make significant improvement over current techniques is of interest, as are new techniques of detecting and validating depth phases for crustal events observed locally, regionally and teleseismically. Proposals to extend existing techniques of discrimination such as Ms:mb to lower level regional signals are of interest, as are other possible discriminants using intermediate period data. The influence of source processes on observed seismic data is of interest, as detailed below.

Proposals are sought complementing existing efforts to answer the question of how seismic energy is generated from underground phenomena (including distributed and single point explosions, double-couple earthquakes and other modes of rock failure), how this energy is partitioned between P and S waves, and how it propagates to local (less than 200 km) and regional distances (less than 2,000 km). Generation of S waves from explosions is of interest, as are models of the source, both theoretical and empirical. Also of interest are observational and experimental studies of small shallow earthquakes, especially high stress drop events, such as in mines. In propagation, the influence of 3D laterally varying structure, including laterally varying vertical velocity gradients, and 3D scattering on the stability of propagation of Pn, Pg, Sn, Lg is of interest. New methods of estimating the yield of a fully coupled explosion, and how emplacement conditions, including partial coupling, affect the observation are of interest. Proposals for theoretical and observational investigations, including empirical source models and mine investigations will be accepted under this topic.

Topic 5 (Infrasound studies)

Proposals are sought for an improved understanding of the fundamental physics of generation of infrasound from underground contained and near-surface explosions and other sources, of local and regional propagation of infrasound signals from such sources, and of atmosphere dynamics affecting propagation of such signals.

Proposals are sought on the interpretation of signals from co-located infrasound and seismic sensors at local and regional distances. Phase association, yield estimation and event identification are of particular interest. Other topics include the uncertainty in azimuth and range determinations for infrasound signals from seismic events at local and regional distances; and the maximum infrasound signal expected from an event that does not have a surface component of energy release.

Topic 6 (Hydroacoustic studies)

Proposals are sought that investigate the physics of long-range hydroacoustic propagation through the Antarctic convergence zone, by hydroacoustic coastline reflection, and through and around blockages. Proposals that investigate the physics of SOFAR channel coupling and long-range propagation of hydroacoustic energy are also sought. Coupling from sources in shallow water and at the air-water interface is of particular interest. Analysis of historic large in-water explosive and other events is of interest for potential discrimination of underwater seismic events. Proposals that analyze the full monitoring spectrum (1-100 Hz) with a focus on energy above 30 Hz are desired. Observational, experimental, and theoretical studies are of interest; studies that combine data with theory are of particular

interest for potential discrimination of underwater seismic events. Software efforts that produce tools or enhance existing tools for research or operational research will also be considered under this topic.

Topic 7 (Radionuclide Studies) –Revision same as BAA07 Notice of Interest

Proposals are sought to enhance the United State's ability to monitor foreign nuclear tests via improved instrumentation used for the detection of radionuclides indicative of nuclear explosions. The primary areas of interest, which are described in more detail below include: the reliability of components of radionuclide sampling equipment, techniques for calibration of gas sampling equipment, miniaturized beta-gamma coincidence electronics, and the miniaturization of noble gas and particulate collection techniques. Proposals are not sought for meteorological models.

Equipment that can significantly improve the reliability, maintainability and performance of high-resolution gamma-ray spectrometers (HPGe) are sought. Possible areas of research include new or modified techniques to cool large HPGe crystals that have the potential to have high reliability without: degrading detector resolution, requiring significantly more maintenance compared to current commercial electromechanical systems, being costly to manufacture, or that are not consistent with unattended operation (e.g., requiring the use of consumables).

Proposals are also sought to provide calibration for beta-gamma xenon detection systems for existing nuclear explosion monitoring equipment such as the Automated Radioxenon Sampler Analyzer (ARSA) system. Proposals in this area should make use of standard techniques such as those described in the literature, and use radioxenon standards, including isotopes such as $^{133}/^{135}\text{Xe}$ to calibrate existing xenon beta-gamma detection systems, without redesign of the existing equipment. The proposals must include the possibility to produce and transfer known quantities of radioxenon into a beta-gamma cell and perform calibrations. Techniques are also sought to check the calibration of radioxenon standards created for calibrating xenon detection systems at low levels for $^{133}/^{135}\text{Xe}$. The instrumentation must be capable of separating the stable and radioactive xenon from a sample and measuring the activity concentration to better than 10% at a $^{133}/^{135}\text{Xe}$ concentration of 10 mBq/cc Xe. Techniques to deliver gas standards with very low dead volume, without the use of Hg or other fluids are also desired.

Proposals are sought to miniaturize NEM gas and particle collection and analysis techniques for use on airborne platforms. Miniaturized components such as small, high flow rate compressors and vacuum pumps may allow size reduction. In addition, proposals might seek to perform research on miniaturized techniques such as the use of binary gas analyzers, air scrubbers ($\text{CO}_2/\text{H}_2\text{O}$ removal at 100 liters per minute or higher), or adsorbents such as carbon-based molecular sieves or permselective membranes to selectively collect gases at room temperature.

Proposals are sought to modernize, miniaturize and standardize electronics used for beta gamma detection systems for use in xenon measuring equipment, without changing the basic operating parameters of the existing beta-gamma detectors. Readout electronics and high-voltage power supplies for the beta/gamma systems can be a weak link in system uptime and reliability. An integrated package that can record 8-12 photomultiplier (PMT) signals with associated time and energy stamping, generate 2-dimensional beta-gamma

coincidence histograms along with single PMT signals, as well, is desired. The readout system must record the live-time for each readout channel and allow for independent gain and offset adjustments. In addition, the ability to have user-defined gating and histogramming options is highly desirable. Embedded controllers for source transfer is also a requirement. In tandem with readout electronics, is the need for an 8-12 channel, high stability, high voltage (HV) power supply that can be remotely set and monitored. The readout and power package will need to interface with the existing ARSA computer architecture and is critical for mission compatibility and short turn around times.

C. Teaming

Teaming is encouraged. Teaming that results in facilitating integration of research products into the NNSA Knowledge Base will enhance programmatic value. Teaming that results in training of graduate students (in particular university/industry teams as a way of providing real world problems for Ph.D. candidates to work on) will enhance programmatic value. Programmatic value is one of the selection criteria for proposals. Teaming may be proposed among organizations including those from universities, the private sector, Federal agencies, FFRDCs, and other organizations. Federal agencies may submit proposals subject to appropriations language but may not partner with FFRDCs in order to not violate the Federal Acquisition Regulations [see FAR 35.017 (a)(2)] prohibition of competition with the private sector. One organization must be designated the lead organization and one individual from the lead organization must be designated as the lead principal investigator. The lead organization will be accountable for the full team effort and will be responsible for integration, management, and reporting for the team.

Proposals from teams should state the perceived benefits of the teaming arrangement, particularly in terms of the proposed research product. The team, for peer review and product management purposes, should submit one integrated proposal, including one Technical Proposal. However, to effectively manage funding allocated to this solicitation, NNSA, AFRL, and SMDC reserve the right to separately contract with and fund Federal agencies or FFRDCs on the team. For this reason, the technical approach, deliverables, and costs must be clearly separable and delineated to allow separate awards to each federal agency or FFRDC on the team. Refer to Section II for more detail on team proposal requirements. The lead organization will be responsible for awarding subcontracts to team members who are not federal agencies and FFRDCs.

Under this solicitation, FFRDCs, including the NNSA national laboratories, can only participate as team members. FFRDCs, including the NNSA national laboratories, will be accessible to any lead organization wishing to discuss teaming arrangements, and will equally evaluate and accommodate all requests for teaming arrangements.

Participation by Federally Funded Research and Development Centers

Federally Funded Research and Development Centers (FFRDCs) are not eligible for an award under this solicitation, but they may be proposed as a team member subject to the following guidelines:

Authorization for non-DOE/NNSA FFRDCs. The Federal agency sponsoring the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the proposal. The use of a FFRDC must be consistent with the FFRDCs authority under its contract and must not place the FFRDC in direct competition with the private sector per Federal Acquisition Regulations (FAR).

Authorization for DOE/NNSA FFRDCs. The DOE/NNSA Site Office Contracting Officer for the participating FFRDC must authorize in writing the use of a DOE/NNSA FFRDC on the proposed project and this authorization must be submitted with the proposal. The following wording is acceptable for this authorization.

“Authorization is granted for the _____ Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complimentary to the missions of the laboratory, will not adversely impact execution of the DOE assigned programs at the laboratory, and will not place the laboratory in direct competition with the domestic private sector.”

Value/Funding. The value of and funding for the FFRDC portion of the work will not normally be included in the award to a successful proposer but the requested dollar amount must be specified in the proposal. Usually, NNSA will fund a DOE/NNSA FFRDC through the NNSA fieldwork proposal system and will fund other FFRDC entities through an interagency agreement with the sponsoring agency.

FFRDC Effort. The FFRDC effort shall not exceed 50% of the total effort in terms of the total proposed costs.

Responsibility. The proposer, if successful, will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues, including but not limited to disputes and claims, arising out of any agreement between the proposer and the FFRDC.

D. Performance Period

The performance period will begin after selection and award (planned for early in the second quarter of fiscal year 2007) and will be between 1 and 3 years. (See III.B, “Award and Notification.”)

E. Program Requirements

1. Reporting Requirements

Quarterly project status reports and quarterly financial reports will be required.

2. Coordination With Knowledge Base Product Integrator

For all BAA07 awards, the lead principal investigator will be assigned to work with an NNSA Product Integrator “subject matter expert” who will ensure that data and research products resulting from the proposal can be integrated into the NNSA Knowledge Base, if appropriate. The Knowledge Base is a well-defined database of data and research products for use in nuclear explosion monitoring operations. Information about the Knowledge Base and the integration process can be found at <https://www.nemre.nnsa.doe.gov/cgi-bin/prod/nemre/index.cgi?Page=Knowledge+Base>. The product integrator will be specified upon award and posted along with the specific award identification information at <https://www.nemre.nnsa.doe.gov/cgi-bin/prod/coord/index.cgi>.

Proposers should plan for at least annual meetings with the assigned Product Integrator to facilitate the appropriate integration of research products with the NNSA Knowledge Base.

3. Program Reviews

Two program reviews will be held per year.

One review will be the annual Seismic Research Review (SRR) where the lead Principal Investigator will be required to prepare a paper and a poster presentation. The SRR is held in September alternating between the east and west coasts. The date and location for the 28th SRR (SRR2006) is September 19-21, 2006 in Orlando, Florida. Information regarding the SRR can be found on <https://www.nemre.nnsa.doe.gov/cgi-bin/prod/researchreview/index.cgi>.

The second review will be a smaller focused review (10-20 contracts) where the lead investigator will provide a summary of work in progress. For planning purposes, it may be assumed the second review will be in the Midwest and will not require a conference fee.

4. Use of PASSCAL Instruments

Proposers who plan to use PASSCAL instruments should state in the proposal the instruments that will be requested and when they will be required.

5. Explosives/Energetic Experiments

Proposers who plan to conduct experiments with explosives or energetic devices should plan for activities and documentation to assure that experiments are well designed with design reviews held with all stakeholders, are coordinated with all stakeholders, are evaluated for NEPA/environmental issues, are in compliance with local requirements/permits, are conducted in a safe manner, and are conducted to not interfere/affect the operations of other already installed measurement/detection systems.

II. PROPOSAL

Proposals must be received by **5:00 PM Eastern Time (3:00 PM Mountain Time) on May 11, 2006**. Proposals received after the deadline will be considered late and will be treated in accordance with Federal Acquisition Regulations (FAR) 15.208, "Submission, Modification, Revision, and Withdrawal of Proposals." Proposals **must be submitted electronically** using the Industry Interactive Procurement System (IIPS) in accordance with the instructions in Section IV. T, "Submission of Proposals." Proposals submitted through any other method such as, the U.S. Postal Service, facsimile, telegraphically, courier companies, or hand-delivered hard copies will be considered non-responsive. Proposals will not be returned to the Proposers. Proposals shall consist of four volumes: Volume 1/Offer or Other Documents, Volume 2/Technical Proposal, Volume 3/Cost Proposal, and Volume 4/Business Management Proposal, as described below. No administrative or cost data shall be included in the Technical Proposal.

The Proposal must contain the following information broken into IIPS volumes as described in Section IV.T.1.

A. Volume 1/Offer or Other Documents

The following information must be included in Volume 1/Offer or Other Documents:

1. Statement that the document is a Proposal;
2. Solicitation Number;
3. Topic Number;
4. Proposal Title;
5. Name and address of Lead Institution;
6. Name, mailing address, telephone number, fax number, electronic mail address of Lead Principal Investigator;
7. Name, mailing address, telephone number, fax number, electronic mail address of Lead Institution Contract Administrator point of contact;
8. Name(s) of Team Organizations;
9. Name(s), telephone(s), email(s) of Principal Investigator(s) of Team Organizations;
10. Name, mailing address, telephone number, fax number, electronic mail address of Proposal Preparer;
11. Preferred Acquisition Instrument: Contract or Financial Assistance;
12. Any concerns regarding the use of non-Government reviewers during the review process;
13. Statement of whether or not use of IRIS PASSCAL seismic equipment is proposed;
14. Total proposed costs and costs by year for lead organization and for each team member
15. Total equipment costs and first year's equipment costs;
16. Submission date, proposed period of performance, offer acceptance period;
17. Indicate if the Lead Institution is a small business, a socially and economically disadvantaged small business, or a woman-owned small business;
18. Indicate if the Lead Institution is a Historically Black College or University or Minority Institution;
19. State if proposal contains any proprietary information, see Section IV. G.

B. Volume 2/Technical Proposal

The Technical Proposal should comply with the following rules. Proposals are to be formatted for 8.5 x 11-inch paper with 1-inch margins in type not smaller than 12 point. The Technical Proposal length shall not exceed 35 single-spaced pages. The offeror's Technical Proposal should specifically address the Technical/Management evaluation Criteria 1-4 in Section III.A of this Solicitation. For a proposal that contains a Technical Proposal that exceeds the applicable page limit, only the first 35 pages of the Technical Proposal will be used for evaluation purposes. The Technical Proposal should have any proprietary data clearly identified and separable as described under "Proprietary Proposal Information."

The Technical Proposal is comprised of the following components:

1. Technical Proposal Identifier Information and Abstract. The technical proposal identifier information must repeat key information from Volume 1, specifically,

- Solicitation Number;
- Topic Number;
- Proposal Title;
- Name of Lead Institution;
- Name, mailing address, telephone number, fax number, and electronic mail address of Lead Principal Investigator;
- Name(s) of Team Organizations;
- Name(s), mailing addresses, telephone numbers, fax numbers, and electronic mail addresses of Principal Investigator(s) of Team Organizations;
- Statement whether or not use of IRIS PASSCAL seismic equipment is proposed;
- Statement of Equipment to be purchased, if any, and purpose for equipment;
- Abstract: a brief (350 words or less) summary of the proposal that succinctly states the highest value deliverable intended from the proposed work.

2. Narrative. The narrative includes tables, figures, and references. Don't bother attaching "QuickTime" movies or adding unnecessary color to figures. Color that simply dresses up a figure is unnecessary and QuickTime movies significantly increase file size making it longer to download, open, read, print, etc. The proposal narrative is to provide a detailed description of the proposed research, including the research objectives, the methodology and approaches for accomplishing those objectives, the anticipated results of the research, the relevance of the proposed research and anticipated results to the program objectives stated in Section I.B, "Technical Scope and Research Topics." It should describe the purpose of the research, provide a review of previous and ongoing work, and identify any technical issues that need to be solved. Facilities, equipment and other resources of the Proposer that will be used in the performance of the proposed research should be described. Any proposed usage of PASSCAL equipment must be explicitly detailed. Any collaborators should also be identified. Proposals from teams should state the perceived benefits of the teaming arrangement.

3. Technical Approach. The Technical Approach should be broken down into phases, to the maximum extent possible, into efforts that can be completed in 12-month increments. Each phase shall list and describe the tasks and subtasks associated with that phase to include identification of associated milestones and deliverables by task and subtask. Deliverables include reports, data, hardware, software and documentation, as applicable. For team proposals, the lead organization's technical proposal is to distinguish the technical role and contributions of each team member.

4. Proposed Schedule. The proposed schedule identifies when a task or subtask begins and ends and provides milestone and deliverable due dates. The proposed period of performance should be commensurate with the tasks. In the final year of deliverables, the proposer should plan on attending and fully participating in the Seismic Research Review, including paper preparation and submission, and travel. In addition, any other proposed travel such as attending professional society meetings or meeting with the Product Integrator should be listed and costed including a statement of purpose for the travel.

5. Key Personnel. The proposal must identify all key senior personnel involved in the project. The proposal must include curricula vitae (background and experience information including a list of relevant publications, if any) of the principal investigator and other key personnel. Any changes to key personnel during the project will need the concurrence of the appropriate NNSA, AFRL, or SMDC Contracting Officer.

C. Volume 3/Cost Proposal

The Cost Proposal includes a statement of the Proposer's costs to perform the proposed work as well as the required budget form DOE F 4620.1. The costs should be commensurate with the proposed tasks.

For both contract and Financial Assistance proposals, the Cost Proposal must include detailed supporting cost schedules and breakdowns for the phases identified in the proposed Technical Approach by task and subtask, and include yearly budget information with written justification for each budget item, especially items of equipment (DOE F 4620.1).

All facilities, equipment, and supplies needed to implement the proposed research must be identified in the budget and the budget must specify whether the dollars requested cover purchase, rental, or borrowing of each item. Any facilities, equipment, or any other non-monetary resources that are required of the Government must be itemized. Any intention of borrowing equipment from the IRIS PASSCAL Equipment Center must be made explicitly in the proposal.

Labor costs should include fringe benefits and are to be provided by labor category. Travel costs are to be itemized by airfare, local travel, per diem and miscellaneous expenses per traveler per destination. The purpose of the trip(s) should also be included. Overhead rates, fees, and taxes are also to be specified. Sufficient funds should be requested to cover

appropriate travel costs including, but not limited to, the annual SRR, other program reviews, coordination meetings with NNSA Product Integrators, and fieldwork.

Separate Budget sheets should be submitted for each federal agency or FFRDC on the team.

If a proposal is selected and a cost reimbursement contract will be awarded, the cost proposal may require revision to meet the requirements of FAR 15.408, Table 15-2, “Instructions for Submitting Cost/Price Proposals when Cost or Pricing Data are Required.”

D. Volume 4/Business Management Proposal.

The Business Management Proposal consists of administrative forms and certifications. Proposers must submit different Business Management Proposals, depending on whether a contract or Financial Assistance is proposed (see detailed list below). All administrative forms are available electronically in IIPS as described in Section IV.R, “Forms”. The following Business Management Proposal requirements apply only for the lead organization. Business Management Proposals information for federal agencies or FFRDCs is not required. Signatures are acceptable by typing the names and dates of authorized personnel on documents requiring a signature. This type of signature is acceptable only when documents are retrieved through IIPS.

The Business Management Proposal must include the following:

Financial Assistance

1. Application for Federal Assistance (Standard Form SF-424).
2. Negotiated indirect rate information. Please provide the name of the negotiating agency and point of contact with email and/or telephone number.
3. Assurances of Compliance – Nondiscrimination in Federally Assisted Programs (Form DOE F 1600.5).
4. Certifications Regarding Lobbying; Debarment, Suspension and Other Responsibility Matters, and Drug-Free Workplace Requirements (Form FA-CERTS).
5. Contract and Financial Assistance List: A list of current and pending government contracts and financial assistance agreements is to be provided that includes the title, sponsoring agency, solicitation reference, and a brief description.
6. Past and Present Performance Information: Descriptions of related past and current efforts and results, as applicable, are to be provided together with points-of-contact, contact information and contract numbers.
7. List of foreign nationals planned to be supported by this effort at the time of submission.
8. NEPA Environmental Checklist Form (See Section IV.Q) is required from the Lead Organization only if the proposed work involves using explosives, energetic material, or chemicals.

Contracts

1. Standard Form SF-33, Solicitation, Offer and Award.
2. Negotiated indirect rate information. Please provide the name of the negotiating agency and point of contact with e-mail and/or telephone number.
3. Assurances of Compliance – Nondiscrimination in Federally Assisted Programs (Form DOE F 1600.5).
4. Representation, Certification, and Other Statements of Offeror (Reps & Certs).
5. Contract and Financial Assistance List: A list of current and pending government contracts and financial assistance agreements is to be provided by title, sponsoring agency, solicitation reference, and brief description.
6. Past and Present Performance Information: Descriptions of related past and current efforts and results as applicable are to be provided along with points-of-contact/reference and contract numbers.
7. List of foreign nationals planned to be supported by this effort at the time of submission and Certificate Pertaining to Foreign Interests, Standard Form SF-328.
8. NEPA Environmental Checklist Form (See Section IV.Q) is required from the Lead Organization only if the proposed work involves using explosives, energetic materials, or chemicals.

III. PROPOSAL REVIEW AND AWARD

A. Review of Proposal and Evaluation Criteria

Review Process

A peer review process by subject matter experts will accomplish the merit review. The review and evaluation process will be conducted jointly by NNSA, AFRL, and SMDC.

Multiple on-line reviewers will evaluate proposals from June 19 – July 31, 2006 then the Peer Review Panels will meet the week of August 28 – September 1, 2006 to objectively evaluate the proposals on its own merit against the Technical Criteria 1-4 described below. The on-line and panel peer reviewers will consist of experts from academic institutions, private industry, FFRDCs, Air Force, Army, NNSA, and/or other Government personnel. Finally, a Source Evaluation Board (SEB), which consists solely of Government personnel will meet by the end of FY2006 with the goal of making awards as early as possible in FY2007. In addition, the SEB also considers non-technical criteria, which includes programmatic balance and budget before making their recommendations for negotiation to the Source Selection Authorities. NNSA, AFRL and SMDC will each designate a Source Selection Authority (SSA). The NNSA SSA, AFRL SSA, and SMDC SSA will determine which proposals will be accepted by each agency, with recommendations from the SEB.

The Government reserves the right to determine which agency funds which proposal.

Note: Non-Government evaluators may be used for reviewing the Technical Proposal. All reviewers are required to sign statements prior to reviewing a proposal attesting to no conflict-of-interest and non-disclosure or personal use of proposal/proprietary information. If the Proposer has any concerns regarding the use of non-Government reviewers they should indicate their reasons for such concerns on the cover page. Additional questions or concerns may be directed to: Mr. Robert D. Lowther, Contract Specialist at: (505) 845-6839 or email at rlowther@doeal.gov.

Evaluation Criteria

Each proposal will be objectively evaluated on its own merit against published criteria by a formal peer review followed by a source selection evaluation. Experts from academia, private industry, FFRDCs and subject matter experts from NA-22 and its contractor organizations, and other Federal Agencies will perform the formal technical peer reviews.

Selection of successful proposals for award will be based on the outcome of the technical reviews mentioned above, in conjunction with the source selection evaluation performed by the Source Evaluation Board, which is composed solely of Government personnel.

The criteria against which proposals will be reviewed are described below. The formal peer review evaluation will be based on Criteria 1-4, which are listed in descending order of importance. Criteria 1, 2 and 3 are significantly more important than 4.

The source evaluation process will be conducted taking into consideration the evaluation of Criteria 1-4 by the formal peer review, Criterion 5, Criterion 6, and Criterion 7, in the following manner:

- Criteria 6 and 7 are more important than Criterion 5;
- Criteria 6 and 7 are of equal importance to the combined peer review evaluation of Criteria 1-4; and
- The combined peer review evaluation of Criteria 1-4 is significantly more important than Criterion 5.

The combined evaluation of Criteria 1-4, 6 and 7 are significantly more important than Criterion 5. It is anticipated that pricing of this action will be based on adequate price competition. In accordance with FAR 15.304 (e), the evaluation factors other than cost or price, when combined, are significantly more important than cost or price; however, cost/price will contribute substantially to the selection decision. A tradeoff process, as authorized in FAR 15.101-1, will be used in the source selection under this procurement.

CRITERIA 1-4: Technical/Management:

(1) **Mission Relevance.** Will the research results improve National capabilities by advancing national technical means to detect, locate and identify nuclear explosions? What is the improvement over existing capabilities or capabilities under development?

(2) **Overall scientific and technical merit.** Is the project based on a solid understanding of the current state of science and technology? Is the proposed method appropriate?

(3) **Risk Assessment.** What is the balance of risk and payoff of the proposed research? Is it a high-risk, high-payoff investment or an incremental improvement? The qualifications, capabilities, and experience of the principal investigator, team leader, and key personnel as well as corporate capabilities and relevant experience should factor into this assessment.

(4) **Research Duplication.** To what extent does the proposed work complement and/or avoid duplication of already ongoing or completed work. Specify which tasks could be deleted as duplicate, if applicable.

CRITERION 5: Management Plan and Budget. Are the proposed costs and management plan reasonable and appropriate?

CRITERION 6: Programmatic balance and value. Programmatic balance includes considerations such as the relative importance or urgency of one specific research effort or technical approach over another. Factors such as end users and relationships to other research efforts influence determinations of importance and urgency. How does this research address validated user requirements or needs and promise demonstrable improvement vs. the current method in use or methods under development? Does a capability shortfall exist in this particular area? How strongly will the project impact its targeted application if it delivers what is proposed? Programmatic value is another consideration factor. Proposed

efforts that contribute to the training of graduate students and the expansion of graduate programs in fields relevant to nuclear explosion monitoring have higher programmatic value than those that do not.

CRITERION 7: Present and Past Performance. NNSA/AFRL/SMDC reserve the right to solicit from available sources relevant information concerning an applicant's past performance and may consider such information in its evaluation. Present and past performance information may include an applicant's on-time reporting history.

B. Award and Notification

It is anticipated that selection decisions will be made during the first quarter of fiscal year 2006. The selection decision notifications will be posted electronically on IIPS within three weeks of the completion of the selection process.

Written decision notifications will also be provided to the Proposers. For successful proposals, written notification will be made by the funding organization (NNSA, AFRL, or SMDC). For unsuccessful proposals, NNSA will provide written notification. After the decisions are announced, unsuccessful Proposers may request a debriefing on an unsuccessful proposal to obtain more information on its strengths and weaknesses. A debriefing does not allow a proposal to be re-reviewed.

In addition, proposals selected to begin negotiations will be listed within three weeks of completion of the selection process at <https://www.nemre.nnsa.doe.gov/cgi-bin/prod/coord/index.cgi?Page=Proposals>.

IV. GENERAL INFORMATION

A. Eligibility Requirements

This solicitation invites proposals from Proposers through Principal Investigators. Proposals must be signed by the Principal Investigator of the Proposer organization, and by an individual who is authorized to commit the Proposer organization and must commit the Proposer to comply with the terms and conditions of the award, if awarded. (Principal Investigators are not generally authorized to act for their institutions). FFRDCs, including the NNSA national laboratories, cannot respond to this solicitation as the prime/lead organization.

Financial Assistance

Recipients and sub-recipients of NNSA Financial Assistance shall comply with the applicable requirements of 10 CFR Part 600, Federal Statutes, the OMB Circulars, and other Government-wide guidance implementing 10 CFR Part 600; and the requirements identified in Appendix A of 10 CFR Part 600.

Contracts

Contractors of NNSA shall comply with the applicable requirements of 48 CFR, Federal Statutes, Executive Orders, and other Government-wide guidance implementing 48 CFR, including the Department of Energy Acquisition Regulations (DEAR).

Contractors of AFRL or SMDC shall comply with the applicable requirements of FAR, DFAR Part 52, Department of Defense (DOD) FAR, DFAR Supplement Part 252, any Government-wide guidance implementing these requirements, Federal Statutes, and applicable Office of Management and Budget (OMB) Circulars.

B. False Statements

Proposals must set forth full, accurate, and complete information as required by this solicitation. The penalty for making false statements is prescribed in 18 U.S.C. 1001.

C. Questions

Frequently asked questions (and their answers) will be posted on the IIPS website at <http://e-center.doe.gov> (See “IIPS Information” below.) Questions concerning this solicitation must be submitted using the IIPS website. Questions will be accepted until July 12, 2005. Responses to questions will be posted on IIPS within one week of receipt, if possible, or no later than July 19, 2005. To submit a question, enter IIPS (<http://e-center.doe.gov>), click on “Browse Opportunities”, click on “Enter IIPS”, click on “Acquisition”, find and click on “Solicitation DE-SC52-06NA27305”, click on “Submit Question”.

D. CFDA and NAICS

For Financial Assistance awards, the Catalog of Federal Domestic Assistance (CFDA) number for this solicitation is 81.113, Nonproliferation and National Security Research. This information is provided for completion of block 10 of the Proposal for Federal Assistance, Standard Form SF-424.

For Acquisition awards, the North American Industry Classification System (NAICS) applies. The NAICS code that applies to this solicitation is 541710. (See <http://www.naics.com>)

E. Export Control

Awardees will be required to comply with U.S. regulations on export control. Additional information may be obtained from the Department of Commerce, Bureau of Industry and Security (Formerly Bureau of Export Administration) at <http://www.bis.doc.gov/> .

F. Patents, Data, and Copyrights

Appropriate intellectual property provisions will be incorporated in any resulting agreement in accordance with appropriate regulations as determined by the status of the Proposer organization and the particular project.

Intellectual property (patents, data, and copyrights) will be treated for NNSA awards in accordance with 48 CFR 52.227, 52 DEAR 952.227, and 48 CFR 27 (contracts) and 10 CFR 600.27 (financial assistance).

For AFRL and SMDC awards, intellectual property will be treated in accordance with FAR 52.227-11 52.227-12 and DOD FAR Supplements.

G. Proprietary Proposal Information

Proposals submitted in response to this solicitation may contain trade secrets and/or privileged or confidential commercial or financial information, which the Proposer does not want, used or disclosed for any purpose other than evaluation of the proposal. The use and disclosure of such data may be restricted, provided the Proposer marks the cover sheet of the proposal with the following legend and specifies the pages of the proposal which are to be restricted in accordance with the conditions of the legend:

"The data contained on pages (specify) of this proposal have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this proposer receives an award as a result of or in connection with the submission of this proposal, NNSA, AFRL and SMDC shall have the right to use or disclose the data herein to the extent provided in the award. This restriction does not limit the government's right to use or disclose data obtained without restriction from any source, including the proposer."

Further, to protect such data, each page containing such data must be specifically identified and marked, including each line or paragraph containing the data to be protected with a legend similar to the following:

"Use or disclosure of the data set forth above is subject to the restriction in Volume 1/Offer or Other Documents portion of this proposal."

It should be noted, however, that data bearing the aforementioned legend may be subject to release under the provisions of the Freedom of Information Act (FOIA), if NNSA, AFRL, SMDC or a court determines that the material so marked is not exempt under the FOIA. The Government assumes no liability for disclosure or use of unmarked data and may use or disclose such data for any purpose. The proposer may request that proprietary information not be disclosed to non-Government reviewers. Such information should be clearly marked and separable, so that the information may be removed prior to submitting the proposal for review.

H. Award Instrument and Program Management

1. NNSA, AFRL, or SMDC Program Management

The cognizant NNSA, AFRL or SMDC federal program managers will have responsibility for conducting periodic reviews of the contractor to monitor progress and ensure alignment with the objectives of the program.

2. Financial Assistance

For Financial Assistance, negotiation, award, and administration will be in accordance with DOE Financial Assistance rules (10 CFR Part 600), DoD grant and agreement regulations (DoDGARS), DoD Directive 3210-6, or other applicable regulations.

Appropriate provisions will be incorporated in any resulting financial assistance instrument as determined by the above.

3. Contracts

For contracts, negotiation, award, and administration will be in accordance with 48 CFR, FAR, DEAR, DoD and Air Force Material Command (AFMC) acquisition regulations.

Appropriate provisions will be incorporated in any resulting contract as determined by the Contracting Officer.

The following provisions are hereby incorporated by reference into this solicitation and will apply to any resulting contract:

- FAR 52.215-1, Alt. I, Instructions to Offerors—Competitive Acquisition (May 2001);
- FAR 52-215-2, Audit and Records—Negotiation (June 1999), (Note: Alt II will apply if a cost reimbursement contract is awarded to a State or local Government, educational institution or other nonprofit institution); and
- FAR 15.215-8, Order of Precedence—Uniform Contract Format (Oct 1997)

I. Sub-Awards to Debarred and Suspended Parties

Contractors, recipients, and participants, at any tier, must not make any Sub-award or permit any Sub-award (subcontract) to any party which is debarred, suspended, or is otherwise excluded from or ineligible for participation in Federal Assistance and Acquisition programs under Executive Order 12549, “Debarment and Suspension” or is otherwise ineligible hereunder.

J. Proposal Preparation

No funding will be available under the NNSA Minority Economic Impact (MEI) loan program for preparation of proposals in response to this solicitation. NNSA assumes no responsibility for any costs associated with the proposal preparation or submission of

proposal if an Award is not made. If a contract is awarded, such costs may be allowable as provided in the applicable cost principles, the contractor's approved accounting system, and the FAR.

K. Notice Regarding Eligible/Ineligible Activities

Eligible activities under this program include those which describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not those that encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

L. Lobbying Restrictions

None of the funds obligated on an Award shall be made available for any activity or the publication or distribution of literature that in any way tends to promote public support or opposition to any legislative proposal on which Congressional action is not complete. This restriction is in addition to those prescribed elsewhere in statute and regulation.

M. Notice Regarding Purchase of American-Made Equipment and Products — Sense of Congress

It is the sense of the Congress that, to the greatest extent practicable, all equipment and products purchased with funds made available under an Award should be American-made.

N. Compliance with Buy American Act

Compliance will be required with Sections 2 through 4 of the Act of March 3, 1933 (41 U.S.C. 10a - 10c, popularly known as the "Buy American Act"). The Proposer should review the provisions of the Act to ensure that expenditures made under an Award are in accordance with it.

O. Additional Information

Proposers are advised that only Contracting Officers are legally authorized to commit the Government. It is highly recommended that proposals contain a thoroughly realized technical approach with clear and descriptive narrative and a detailed cost breakdown with rationale for the proposed costs.

The projects awarded by NNSA as a result of this Solicitation will be administered by the NNSA Service Center. Negotiation, award, and administration will be in accordance with DOE Financial Assistance Rules (10 CFR Part 600) if a financial assistance instrument is chosen, and 48 CFR (FAR) if a contract is awarded. The Code of Federal Regulations may be obtained electronically at <http://www.gpoaccess.gov/cfr/index.html>. The FAR may be accessed at <http://www.acqnet.gov/far/>.

Projects awarded by AFRL as a result of this solicitation will be administered by the AFRL/VSBYE and ESC/PKR, at Hanscom AFB. Negotiation, award, and administration will be in accordance with FAR, DOD, and AFMC acquisition regulations.

Projects awarded by SMDC as a result this solicitation will be administered by the Advanced Technology Directorate in Huntsville, AL. Negotiation, awards, and administration will be in accordance with FAR, DoD and Army acquisition regulations.

P. Classified Proposals

It is anticipated that research under this Solicitation shall generally be unclassified. Some efforts, however, may be classified. Proposers for classified efforts may use up to five pages of the 35-page limit on the Technical Proposal for a classified annex, following appropriate classification guides. Since some of the guides are classified, personnel and facility clearances must accompany the request. Do not submit any classified information on IIPS. To obtain instructions on the process for submission of classified proposals, such proposers may contact: Mr. Robert D. Lowther, Contract Specialist

Email: rlowther@doeal.gov

Q. National Environmental Policy Act (NEPA) Requirements

Only proposals that propose work using explosive, energetic material, or chemicals must include an Environmental Checklist. For proposals with a teaming arrangement, only the lead Proposer need complete an Environmental Checklist that covers the team's efforts. This checklist is to be completed at the time of proposal submission and be included in the Business Management Proposal as indicated in Section II.D. The Environmental Checklist consists of a series of questions designed to gather information in the following general areas as related to the proposed project: chemicals, waste generation, emissions, permitting, natural resources and any unique or controversial issues. The requested information will be used by NNSA, AFRL, and SMDC to evaluate any potential impacts (positive and negative) on the environment and, accordingly, contain sufficient detail for each Agency to meet its requirements under NEPA.

Proposers are restricted from taking any irreversible action prior to NNSA, AFRL, or SMDC reaching a final NEPA decision regarding the proposed project. Irreversible actions include demolition of existing buildings, site clearing, ground breaking, construction, and/or detailed design. This restriction, however, does not preclude the proposer from developing plans, preliminary designs, or performing other necessary support work prior to the funding Agency reaching its final NEPA decision, provided the work has been authorized by NNSA, AFRL, or SMDC.

R. Forms

All forms for this solicitation are included as file attachments to this solicitation in IIPS. These forms are in writable PDF, MS Word, and MS Excel formats and include:

1. Application for Federal Assistance (Standard Form SF-424) – Adobe Acrobat pdf
2. Budget Page (DOE F 4620.1) – Adobe Acrobat pdf
3. Assurance of Compliance – Nondiscrimination in Federally Assisted Programs (DOE F 1600.5) – Adobe Acrobat pdf
4. Past and Present Performance Information
5. Certifications Regarding Lobbying; Debarment, Suspension and Other Responsibility Matters; and Drug-Free Workplace Requirements (FA-CERTS) – Microsoft Word file
6. Representation, Certification, and Other Statements of Offeror (Reps & Certs)
7. Environmental Checklist (NEPA) – Microsoft Word file

S. Disclosure of Access to Contractor Technical and Financial Information Beyond Government Employees

The Air Force Research Laboratory's Nuclear Explosion Monitoring Research program office at Hanscom Air Force Base Massachusetts have contractor support personnel that provide administrative assistance to the government contract managers. The employers of these support personnel are either Dynamic Research Corporation (DRC), a local small business, or Boston College Institute for Scientific Research. In the performance of their duties they have full access to funding information as well as For Official Use Only (FOUO). A non-disclosure agreement is in force for each individual.

The NNSA Office of Nonproliferation Research and Engineering (NA-22) in Washington D.C. and the NNSA Service Center in Albuquerque, New Mexico have contractor support personnel that provide technical and administrative assistance to the government program/project managers. The employers of these support personnel are Lockheed Martin, and Westech International. In the performance of their duties they have full access to funding information as well as For Official Use Only (FOUO). A non-disclosure agreement is in force for each individual.

The Army Space and Missile Defense Command (SMDC) offices at Redstone Arsenal, Huntsville, Alabama have contractor support personnel that provide administrative assistance to the government contract managers. The employer of the support personnel is Radiance Technologies, a local business. In the performance of their duties they have full access to funding information as well as For Official Use Only (FOUO). A non-disclosure agreement is in force for each individual.

T. Amendments to the Solicitation

Amendments/Modifications will *only* be placed on the DOE's e-Center Industry Interactive Procurement System (IIPS) homepage at <http://e-center.doe.gov> (see "IIPS Information" below). Hard copies will not be mailed. Only those parties **officially registered** with IIPS may enroll in the Solicitation Mailing List to receive e-mail notices that amendments, if any, to this solicitation, have been posted. NNSA reserves the right to extend the closing date for Proposals, if necessary.

U. Submission of Proposals

Proposals **must be submitted electronically** through DOE's e-Center Industry Interactive Procurement System (IIPS), which is accessed online at: <http://e-center.doe.gov> . IIPS provides the medium for disseminating solicitations, receiving proposals, and awarding proposals in a paperless environment. **SUBMISSION OF PROPOSALS BY MEANS OTHER THAN THE IIPS IS NOT AUTHORIZED.**

Individuals who have the authority to enter their institution into a legally binding contract/agreement and intend to submit proposals via IIPS **must register and receive confirmation that they are registered prior to being able to submit a proposal** on IIPS. There is a short waiting period between registration and the acceptance of registration, typically a day. Proposers are strongly encouraged to register with IIPS as soon as possible before the proposal deadline. Submission of electronic proposals via IIPS will constitute submission of signed copies of the required documents. The name of the authorized company official shall be entered (typed) in the appropriate space shown on the form(s) (e.g., Block 18 of the SF-424 and/or Block 17 of SF-33. Subcontractor submissions of proprietary information may (i) register in IIPS and submit their information separately identifying in the subject line, the solicitation number and to whom they are a subcontractor; or (ii) provide a password protected document (file) to the prime and share the password with the Contracting Officer. Regardless of the option chosen, the subcontractor proposal must adhere to the proposal due date/time stated in the solicitation. See "IIPS Tips" below (Section IV.T.3.) for contact information, guidance, and instructions on using IIPS.

Proposals must be submitted as an Adobe Acrobat PDF file, a Microsoft Word file, a Microsoft Excel file, or a Corel WordPerfect file via the IIPS in accordance with the instructions outlined in this solicitation and the IIPS User Guide.

ALL PROPOSALS MUST HAVE AN IIPS TRANSMISSION TIME STAMP OF NOT LATER THAN 5:00 P.M. EASTERN TIME (3:00 P.M. MOUNTAIN TIME) ON May 11, 2006.

1. Transmission Instructions

Proposers are advised to begin transmission 24 hours in advance of the deadline in order to avoid any transmission difficulties.

Proposals are submitted in parts and uploaded into designated IIPS volumes. Specific documents must be uploaded into specific volumes. Review these requirements before you compile the documents for your proposal.

Proposals must be complete and all documents must be transmitted in one session. Failure to transmit all documents in one session will result in an incomplete proposal. IIPS cannot combine partial proposals. Incomplete proposals are eliminated from further consideration. Proposers may combine the documents for a specific volume into one file provided that file contains **only** those documents required for that volume. Documents may also be submitted as individual files. Forms should be

submitted as individual files. **Regardless of the contractual instrument (Financial Assistance or Contract) being requested, proposals must be filed as an “Acquisition” and proposal documents must be uploaded into the volumes as follows:**

Volume 1/Offer or Other Document:

(See paragraph II. A)
Proposal Information

Volume 2/Technical Proposal:

(See paragraph II. B)
Technical Proposal Identifying Information & Abstract
Narrative
Technical Approach
Proposed Schedule
Key Personnel

Volume 3/Cost Proposal:

(See paragraph II. C)
Budget Pages (DOE F 4620.1)
Budget Justification

Volume 4/Business Management Proposal:

(See paragraph II. D)
Financial Assistance only
Application for Financial Assistance (SF-424)
Negotiated Indirect Rate Agreement
Assurances of Compliance (DOE F 1600.5)
Certifications (FA-CERTS)
Contract and Financial Assistance List
Past and Present Performance Information
List of Foreign Nationals
NEPA Environmental Checklist (if required)

Contracts only

Solicitation, Offer and Award (SF-33)
Negotiated indirect rate information
Assurances of Compliance (DOE F 1600.5)
Representations, Certifications, and Other Statements of Offeror (Reps & Certs)
Contract and Financial Assistance List
Past and Present Performance Information
List of foreign nationals and SF-328
NEPA Environmental Checklist (if required)

If you make an error uploading files, log out of IIPS and start over. **You must resubmit the entire proposal.** See below further instructions on resubmitting proposals.

2. Late Proposals, Amendments, and Withdrawal of Proposals

A proposal or amendment of a proposal shall be timely if it is transmitted through IIPS, and the date/time of the transmission indicated by IIPS is on or before the closing date indicated above. Any proposal or amendment received after the closing date and time will be considered a late submission and treated in accordance with FAR 15.208.

Corrections and Changes: Proposals cannot be altered once they have been submitted to IIPS. Proposers are required to ***resubmit an entire proposal package*** when making any change. Failure to resubmit a full proposal package including all required documents will result in an incomplete proposal. Proposers are to notify the Contracting Specialist (contact information below) when resubmitting a proposal so that the prior proposal may be removed from IIPS. Changes and corrections cannot be accepted after the closing date and time.

Removing Proposals: If you wish to withdraw or make any change to your proposal, the individual who submitted the proposal must make a written request to the Contracting Specialist to have the proposal removed from IIPS. The request must include the submitter's name, organization, title of the proposal, and the date and time the proposal was submitted. Email the request to the Contracting Specialist (contact information in section 3 below). ***The entire original proposal will be removed. The entire replacement proposal, if any, must be resubmitted.***

Duplicate Submissions: In the event a Proposer submits two or more proposals with the same title, the proposal with the latest date and time stamp is the proposal that will be accepted. It is not possible to combine submissions. Please follow the guidance above for removing incorrect proposals so that duplicate proposals are not processed in IIPS.

3. IIPS Tips

Refer to the "User Guide For Contractors" by going to the IIPS Homepage at <http://e-center.doe.gov> and clicking on the "Help" button. The Guide contains minimum system requirements needed for using IIPS and provides detailed instructions for registration, joining the mailing list, submitting questions, proposal response (proposal submission), etc. Should you need additional assistance after reviewing the Guide, please contact the IIPS Help Desk as noted below.

IIPS Help Desk: Hours: 8am – 8pm ET M-F, except Federal holidays
Phone: (800) 683-0751 (press 1 to bypass the recorded message)

Email: IIPS_HelpDesk@e-center.doe.gov
Frequently Asked Questions:
<https://e-center.doe.gov/iips/FAQs.nsf>

For questions concerning the solicitation requirements please contact:

Contracting Specialist: Mr. Robert D. Lowther
Email: rlowther@doeal.gov

Preparing Your Submission

Register Early: If you and your contracting or grants office has not already done so, register in IIPS. The individual(s) in your organization who have the authority to enter the institution in a legally binding contract or agreement will need to register, as they are the ones who are required to submit the final proposal into IIPS. We **strongly** recommend all parties register at least two weeks prior to the closing date. Registration confirmation can take some time. Do not wait until the closing date to begin this process.

Practice: If you would like to practice submitting your proposal you may do so by clicking on the link to the test area on the solicitation main page. You may practice in this area as much as you like. Documents submitted into the test area are periodically deleted. Do not submit your proposal in this area.

Submitting Your Proposal

Transmit Early: Do not wait until the last minute. Submit your proposal into IIPS at least 24 hours prior to the deadline. If you encounter any transmission problems, connectivity issues, etc. you will have time to work them out before the solicitation closes. Proposals will not be able to transmit after the submission deadline.

IIPS will provide confirmation of a successful transmission. If you encounter difficulties uploading your files, contact the IIPS help desk for assistance.

Classified Information: Do **not** submit any **classified** information on IIPS. For instructions on the process for submitting a classified proposal please contact Mr. Robert D. Lowther at (505) 845-6839.

V. SOLICITATION DEFINITIONS

“Award” means the written documentation executed by a NNSA, AFRL, or SMDC Contracting Officer, after a Proposer is selected, which contains the terms and conditions for providing a contract or financial assistance to the Proposer(s).

“Broad Agency Announcement (BAA)” means the acquisition of basic and applied research and that part of development not related to the development of a specific system or hardware procurement, per FAR 35.016.

“Budget” means the cost expenditure plan submitted in the Proposal, including both the NNSA/AFRL/SMDC contribution and that provided by the Proposer institution(s).

“Budget Period” means an interval of time, specified in the award, into which a project is divided for budgeting and funding purposes.

“CFDA” is the Catalog of Federal Domestic Assistance. The CFDA provides information on Federal Assistance Programs. Information on Federal Grant Programs can be found at <http://www.cfda.gov>.

“Contract” means a mutually binding legal relationship obligating the seller (Proposer) to furnish the supplies or services and the buyer (the Government) to pay for them. It includes all types of commitments that obligate the Government to an expenditure of appropriated funds and that, except as otherwise authorized, are in writing.

“Contracting Officer” means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the contracting officer acting within the limits of their authority as delegated by the contracting officer.

“Cooperative Agreement” means a financial assistance instrument used by NNSA to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal Statute, and substantial involvement is anticipated between NNSA and the Proposer during the performance of the contemplated activity.

“Export Control” refers to government rules and regulations that govern the transfer of commodities (equipment, hardware, or materiel), technologies (technical data, information, or assistance), and software (commercial or custom) to any non-U.S. entity or individual, wherever the transfer may take place.

“FA CERTS” means the Financial Assistance form entitled *Certifications Regarding Lobbying, Debarments, Suspension And Other Responsibility Matters, and Drug-Free Workplace Requirements*. This form is required of all Proposers.

“FFRDC” refers to a Federally Funded Research and Development Center such as the NNSA National Laboratories.

“Financial Assistance” means the transfer of money or property to a recipient or sub-recipient to accomplish a public purpose of support authorized by Federal Statute through Research Grants or Cooperative Agreements and Sub-awards. In NNSA, it does not include direct loans, loan guarantees, price guarantees, purchase agreements, Cooperative Research and Development Agreements (CRADAs), or any other type of financial incentive instrument.

“Industry Interactive Procurement System (IIPS)” means the Internet based, electronic system used to submit proposals.

“Key Personnel” mean the individuals who will have significant roles in planning and implementation of the proposed project.

“Knowledge Base” means the state-of-art computerized database of research products (primarily seismic) that are structured for use in the US National Data Center data processing pipeline. Product integration from the research level to the operational level is a central thrust of the NNSA Ground-Based Nuclear Explosion Monitoring Research and Engineering Program and the NNSA Knowledge Base is instrumental in making this transition successful. For more information see <https://www.nemre.nnsa.doe.gov/KnowledgeBase>.

“Merit Review” means a thorough, consistent, and objective examination of proposals based on pre-established criteria by persons who are independent of those submitting the proposals and who are knowledgeable in the field of endeavor for which support is requested. For this solicitation, the merit review will be conducted using a peer review process.

“Peer Review” means merit reviews by subject matter experts for this solicitation.

“Principal Investigator” as applied to proposals under this solicitation means the single individual responsible for the management of the proposal/project. In the case of teams, each organization will specify a principal investigator, with one principal investigator designated as the “lead.” The lead principal investigator will be from the organization designated the overall technical lead and will be accountable for the full team effort.

“Product Integrator” means the person responsible for ensuring that data and research results and products developed under this solicitation are properly integrated into the NNSA Knowledge Base.

“Project” means the set of activities described in a Proposal or other document that is approved by NNSA/AFRL/SMDC for financial assistance or a contract (whether such financial assistance represents all or only a portion of the support necessary to carry out those activities).

“Project Period” means the total period of time indicated in an award during which NNSA expects to provide support contingent upon satisfactory progress and available funds. A Project Period may consist of one or more Budget Periods and may be extended by NNSA.

“Proposal” means the documentation submitted in response to this solicitation.

“Proposer” as applied to this solicitation means the university, National Laboratory, or organization committed to the execution of the proposed project under the direction of its Principal Investigator.

“Recipient” or “Awardee” means the entity that receives an award from NNSA, AFRL, or SMDC and is financially accountable for the use of any Government funds provided for the performance of the project, and is legally responsible for carrying out the terms and conditions of the award.

“Sub-award” means an award of Financial Assistance by a recipient to an eligible sub-recipient. The term may include a contract under a financial assistance award. Sub-awards are discouraged in favor of teaming arrangements for this solicitation.

“Solicitation” means any request to submit offers or quotations to the Government. As used in this document, “solicitation” is synonymous with “Broad Agency Announcement” or “BAA.”

“Substantial Involvement” means involvement on the part of the government that includes direction that the Proposer(s) is required to follow. Such involvement will be negotiated with each Proposer prior to signing any agreement.

“Teaming” means an arrangement in which two or more organizations work together on a proposal and subsequent award with one individual designated as the lead principal investigator responsible for the integration, management, and reporting for the team.